

Appendix C

Final CHART Assessment for the California Central Coast Steelhead ESU

ESU Description

The CCC Steelhead ESU was listed as a threatened species in 1997 (62 FR 433937; August 18, 1997). The ESU includes all naturally spawned populations of steelhead in coastal river basins from the Russian River southward to, and including Aptos Creek, as well as naturally spawned populations of steelhead in streams that drain into San Francisco and San Pablo Bay eastward to but excluding the Sacramento-San Joaquin Delta. Major coastal watersheds occupied by naturally spawning fish in this ESU include the Russian River, Lagunitas Creek, and San Lorenzo River. Important watersheds occupied by naturally spawning fish within the San Francisco Bay/San Pablo Bay area include Coyote Creek, Guadalupe Creek, Petaluma River, and the Napa River. Based on an updated status review (NMFS 2003a) and an assessment of hatchery populations located within the range of the ESU (NMFS 2003b), NMFS proposed that the ESU remain listed as a threatened species (69 FR 33102; June 14, 2004). In addition, NMFS proposed that resident O. mykiss co-occurring with anadromous populations below impassable barriers (both natural and man made), two artificially propagated populations (Don Clausen Fish Hatchery in the Russian River basin and the Kingfisher Flat Hatchery/Scott Creek hatchery in Scott Creek south of San Francisco) and three resident O. mykiss sub-populations above Dam 1 in Upper Alameda Creek also be included in this ESU. NMFS recently determined that a 6-month extension in making a final listing determination for this and all other west coast steelhead/O. mykiss ESUs was warranted (70 FR 37219; June 28, 2005). A Technical Recovery Team has developed a preliminary model of the historic and extant population structure of this ESU. Additional technical recovery planning work is underway that will identify viability criteria for independent populations within the ESU and for the ESU as a whole.

CHART Area Assessments

The preliminary CHART assessment for this ESU (NMFS 2004b) was prepared to support our December 10, 2004, critical habitat proposal (69 FR 71880). In the preliminary CHART assessment, the team considered the watershed unit occupied by resident O. mykiss in upper Alameda Creek to be occupied for the purposes of critical habitat analysis because these populations were proposed for listing and a final listing

determination was expected before the final critical habitat designation was scheduled to be finalized. However, because a final determination regarding the listing status of these resident populations has been delayed until December 2005, the watershed unit occupied by these populations was treated as unoccupied in this final CHART assessment. The final CHART assessment also considered new information received during the public comment period regarding fish distribution and habitat use. Based on these comments and new information, relatively minor changes in fish distribution were made in two HSA watersheds (220320 and 220550). These changes in fish distribution added approximately 9 miles of additional occupied stream habitat, but did not result in any changes in the occupancy of conservation value of Hydrologic Subareas (HSA) within the freshwater and estuarine range of this ESU.

The final CHART assessment for the CCC Steelhead ESU addressed into 10 CALWATER Hydrologic Units (HUs) or subbasins containing 46 occupied HSAs (Figures C1 and C2). The HSAs were chosen as freshwater critical habitat units because they presented a convenient and systematic way to organize the CHART's watershed assessments for this ESU. Five of the HSAs included in this assessment encompass the San Francisco-San Pablo-Suisun Bay complex which constitutes migratory and rearing habitat for several Bay area tributary stream populations (Figure C3). Information presented below for individual HUs within the range of the ESU (area, counties, total stream miles, occupied stream miles, and habitat use) were generated from GIS data sets compiled by the NMFS Southwest Region and can be found in Table C1.

Unit 1. Russian River Subbasin (HU 1114)

The Russian River HU is located in the northern portion of the ESU and includes the Russian River drainage. The HU encompasses approximately 1,483 square miles and occurs primarily in Mendocino and Sonoma Counties. The HU contains 11 HSAs, 10 of which are occupied, and 1,831 stream miles (at 1:100,000 hydrography). The unoccupied HSA does not contain fish because it is located above Coyote Dam which is an impassable fish barrier used to facilitate water diversions from the Eel River and delivery downstream for agricultural and municipal purposes. Fish distribution and habitat use data compiled by NMFS biologists identify approximately 713 miles of occupied riverine habitat in the 10 occupied HSAs (Table C1). The CHART concluded that these occupied HSAs contained one or more PCEs (i.e. spawning, rearing, or migratory habitat) and identified several management activities that may affect the PCEs. Table C2 summarizes

the total miles of occupied riverine habitat for each HSA watershed that contain spawning/rearing, rearing/migration, or migration PCEs, as well as management activities that may affect the PCEs in each HSA. Map C1 depicts the specific areas in this HU and the nested HSAs that are occupied by the ESU and were considered for critical habitat designation. The CHART did not identify any unoccupied areas in this subbasin that may be essential for the conservation of the ESU.

Unit 2. Bodega Bay Subbasin (HU 1115)

The Bodega Bay HU is located in the north central portion of the ESU and includes several small streams including Bodega Harbor. The HU encompasses approximately 147 mi² and occurs in Sonoma and Marin Counties. This HU contains 4 HSAs, 2 of which are occupied, and 157 stream miles (at 1:100,000 hydrography). Fish distribution and habitat use data compiled by NMFS biologists identify approximately 25 miles of occupied riverine habitat in the occupied HSAs (Table C1). The CHART concluded that these occupied areas contained one or more PCEs (i.e. spawning, rearing, or migratory habitat) and identified management activities that may affect the PCEs. Table C2 summarizes the total miles of occupied riverine habitat identified for each HSA watershed that contain spawning/rearing, rearing/migration, or migration PCEs, as well as management activities that may affect the PCEs in each HSA. Map C2 depicts the specific areas in this HU (and nested HSAs) that are occupied by the ESU and were considered for critical habitat designation. The CHART did not identify any unoccupied areas in this subbasin that may be essential for the conservation of the ESU.

Unit 3. Marin Coastal Subbasin (HU 2201)

The Marin Coastal HU is located in the central coastal portion of the ESU and includes several small watersheds including Lagunitas Creek. The HU encompasses approximately 327 mi² and occurs primarily in Marin County. This HU contains 5 HSAs, 4 of which are occupied, and a total of 347 miles of streams (at 1:100,000 hydrography). The unoccupied HSA lacks satisfactory habitat and is of high gradient. Fish distribution and habitat use data compiled by NMFS biologists identify approximately 75 miles of occupied riverine habitat in the 4 occupied HSAs (Table C1). The CHART concluded that these occupied areas contained one or more PCEs (i.e. spawning, rearing, or migratory habitat) and identified management activities that may affect the PCEs. Table C2 summarizes the total miles of occupied riverine and estuarine habitat identified for each HSA watershed that contain spawning/rearing, rearing/migration, or migration PCEs, as well as management activities that may affect the PCEs in each HSA. Map C3

depicts the specific areas in this HU (and its nested HSAs) that are occupied by the ESU and were considered for critical habitat designation. The CHART did not identify any unoccupied areas in this subbasin that may be essential for the conservation of the ESU.

Unit 4. San Mateo Subbasin (HU 2202)

The San Mateo HU is located on the coast immediately south of the Golden Gate and includes several small creeks including San Gregorio and Pescadero Creeks. The HU encompasses approximately 257 mi² and occurs primarily in San Mateo County with small portions in San Francisco, Santa Cruz, and Santa Clara Counties. This HU contains 6 HSAs, 5 of which are occupied, and a total of 319 miles of streams (at 1:100,000 hydrography). Fish distribution and habitat use data compiled by NMFS biologists identify approximately 144 miles of occupied riverine habitat in the occupied HSAs (Table C1). The CHART concluded that these occupied areas contained one or more PCEs (i.e. spawning, rearing, or migratory habitat) for this ESU and identified management activities that may affect the PCEs. Table C2 summarizes the total miles of occupied riverine habitat for the HSAs that contain spawning/rearing, rearing/migration, or migration PCEs, as well as management activities that may affect the PCEs in each HSA. Map C4 depicts the specific areas in this HU (and its nested HSAs) that are occupied by the ESU and were considered for critical habitat designation. The CHART did not identify any unoccupied areas in this subbasin that may be essential for the conservation of the ESU.

Unit 5. Bay Bridges Subbasin (HU 2203)

The Bay Bridges HU is located in the central portion of the ESU and includes portions of northern San Francisco Bay, San Pablo Bay, and some associated watersheds. The HU encompasses approximately 191 mi² and occurs in portions of several counties including: Alameda, Contra Costa, Marin, and San Francisco. This HU contains 4 HSAs, 3 of which are occupied, and 85 miles of streams (at 1:100,000 hydrography). The San Francisco Bayside HSA is unoccupied due to intense urbanization and lack of stream habitat. Fish distribution and habitat use data compiled by NMFS biologists identify approximately 26 miles of occupied riverine habitat in the 3 occupied HSAs (NMFS 2004a). One of the occupied HSAs (220312; Bay Waters) includes that portion of San Francisco Bay bounded by the Bay Bridge, the Golden Gate Bridge, and the Richmond Bridge, and it encompasses an area of approximately 83 mi² (Figure C3). The CHART concluded that these occupied areas contained one or more PCEs (i.e. spawning, rearing, or migratory habitat) for this ESU and identified management activities that may affect

the PCEs. Table C2 summarizes the total miles of occupied riverine and estuarine habitat identified for each HSA watershed that contain spawning/rearing, rearing/migration, or migration PCEs, as well as management activities that may affect the PCEs in each HSA. Map C5 depicts the specific areas in this HU that are occupied by the ESU and under consideration for the critical habitat designation. The CHART did not identify any unoccupied areas in this subbasin that may be essential for the conservation of the ESU.

Unit 6. South Bay Subbasin (HU 2204)

The South Bay HU is located in the southern portion of the ESU and includes South San Francisco and associated tributaries such as Alamada Creek. This HU encompasses approximately 1,220 mi² and occurs in portions of several Counties including: Alameda, Contra Costa, San Francisco, San Joaquin, San Mateo, Santa Clara, and Stanislaus. This HU contains 4 HSAs, three of which are occupied, and 1,279 miles of streams (at 1:100,000 hydrography). The HSA watershed that is considered unoccupied for the purposes of this assessment is Upper Alameda Creek (HSA 220430). This watershed is not currently accessible to steelhead, but it is occupied by resident O. mykiss populations which NMFS has proposed to include in this ESU (69 FR 33102; June 14, 2004). Fish distribution and habitat use data compiled by NMFS biologists identify approximately 47 miles of occupied riverine habitat in the occupied HSAs (Table C1). One of the occupied HSAs (220410; Bay Channel) includes that portion of San Francisco Bay south of the Bay Bridge to the Dumbarton Bridge, and it encompasses an area of approximately 173 mi² (Figure C3). The CHART concluded that these occupied areas contained one or more PCEs (i.e. spawning, rearing, or migratory habitat) for this ESU and identified management activities that may affect the PCEs. Table C2 summarizes the total miles of occupied riverine and/or estuarine habitat identified for each HSA watershed that contain spawning/rearing, rearing/migration, or migration PCEs, as well as management activities that may affect the PCEs in each HSA. Map C6 depicts the specific areas in this HU (and nested HSAs) that are occupied by the ESU and were considered for critical habitat designation. The CHART did not identify any unoccupied areas in this subbasin that may be essential for the conservation of the ESU.

Unit 7. Santa Clara Subbasin (HU 2205)

The Santa Clara HU is located in the southern portion of the ESU and includes part of South San Francisco Bay and associated tributaries including Coyote Creek and the Guadalupe River. This HU encompasses approximately 840 mi² and occurs primarily in Santa Clara County and smaller portions of Alameda, San Mateo, Santa Cruz, and

Stanislaus Counties. The HU contains 5 occupied HSAs and 975 miles of streams (at 1:100,000 hydrography). Fish distribution and habitat use data compiled by NMFS biologists identify approximately 126 miles of occupied riverine habitat in the occupied HSAs (Table C1). One of the occupied HSAs (220510; Dumbarton South) includes that portion of San Francisco Bay south of the Dumbarton Bridge which encompasses an area of approximately 15 mi² (Figure C3). The CHART concluded that these occupied areas contained one or more PCEs (i.e. spawning, rearing, or migratory habitat) for this ESU and identified management activities that may affect the PCEs. Table C2 summarizes the total miles of occupied riverine and estuarine habitat identified for each HSA watershed that contain spawning/rearing, rearing/migration, or migration PCEs, as well as management activities that may affect the PCEs in each HSA. Map C7 depicts the specific areas in this HU that are occupied by the ESU and were considered for critical habitat designation. The CHART did not identify any unoccupied areas in this subbasin that may be essential for the conservation of the ESU.

Unit 8. San Pablo Subbasin (HU 2206)

The San Pablo HU is located in the central portion of the ESU and includes part of San Pablo Bay as well as several associated tributaries including the Petaluma River, Sonoma Creek, and the Napa River. This HU encompasses approximately 1,018 mi² and occurs in several Counties including: Alameda, Contra Costa, Marin, Napa, Sonoma, and Solana. The HU contains 6 HSAs, all of which are occupied, and 974 miles of streams (at 1:100,000 hydrography). Fish distribution and habitat use data compiled by NMFS biologists identify approximately 378 miles of occupied riverine habitat in the 6 HSAs (Table C1). One of the occupied HSAs (220610; San Pablo Bay) includes San Pablo Bay from the Richmond Bridge to the Carquinez Bridge, an area that encompasses approximately 115 mi² (Figure C3). The CHART concluded that these occupied areas contained one or more PCEs (i.e. spawning, rearing, or migratory habitat) for this ESU and identified management activities that may affect the PCEs. Table C2 summarizes the total miles of occupied riverine and estuarine habitat identified for each HSA watershed that contains spawning/rearing, rearing/migration, or migration PCEs, as well as management activities that may affect the PCEs in each HSA. Map C8 depicts the specific areas in this HU that are occupied by the ESU and were considered for critical habitat designation. The CHART did not identify any unoccupied areas in this subbasin that may be essential for the conservation of the ESU.

Unit 9. Suisun Bay Subbasin (HU 2207)

The Suisun Bay HU is located in the easternmost portion of the ESU and includes Suisun Bay and associated tributaries including Mount Diablo Creek and Suisun Creek. This HU encompasses approximately 653 mi² and occurs primarily in Solano and Contra Costa Counties. The HU contains 8 HSAs, 5 of which are occupied, and 794 miles of streams (at 1:100,000 hydrography). The remaining three HSAs are unoccupied due to unsuitable habitat and/or barriers and urbanization. Fish distribution and habitat use data compiled by NMFS biologists identify approximately 69 miles of occupied riverine habitat in the 5 occupied HSAs (Table C1). One of the occupied HSAs (220710; Suisun Bay) includes Suisun Bay which encompasses an area of approximately 56 mi² (Figure C3). The CHART concluded that these occupied areas contained one or more PCEs (i.e. spawning, rearing, or migratory habitat) for this ESU and identified management activities that may affect the PCEs. Table C2 summarizes the total miles of occupied riverine and estuarine habitat identified for each HSA watershed that contain spawning/rearing, rearing/migration, or migration PCEs, as well as management activities that may affect the PCEs in each HSA. Map C9 depicts the specific areas in this HU that are occupied by the ESU and were considered for critical habitat designation. The CHART did not identify any unoccupied areas in this subbasin that may be essential for the conservation of the ESU.

Unit 10. Big Basin Subbasin (HU 3304)

The Big Basin HU is located in the southernmost coastal portion of the ESU south of The Golden Gate and includes several small coastal streams such as Gazos Creek, Waddell Creek, Scott Creek, the San Lorenzo River, Soquel Creek and Aptos Creek.. This HU encompasses approximately 367 mi² and occurs primarily in Santa Cruz and Santa Clara Counties. The HU contains 4 HSAs, all of which are occupied, and 509 miles of streams (at 1:100,000 hydrography). Fish distribution and habitat use data compiled by NMFS biologists identify approximately 220 miles of occupied riverine/estuarine habitat in the 4 HSAs (Table C1). The CHART concluded that these occupied areas contained one or more PCEs (i.e. spawning, rearing, or migratory habitat) for this ESU and identified management activities that may affect the PCEs. Table C2 summarizes the total miles of occupied riverine habitat identified for each HSA watershed that contains spawning/rearing, rearing/migration, or migration PCEs, as well as management activities that may affect the PCEs in each HSA. Map C10 depicts the specific areas in this HU that are occupied by the ESU and were considered for critical habitat designation. The CHART did not identify any unoccupied areas in this subbasin that

may be essential for the conservation of the ESU.

Final CHART Conservation Value Rating

Freshwater/Estuarine Areas

After reviewing the best available scientific data regarding critical habitat for this ESU, the CHART concluded that most of the occupied HSAs were of high or medium conservation value to the ESU. Of the 46 occupied HSAs that were evaluated, 19 were rated as having high conservation value, 13 were rated as having medium conservation value, and 14 were rated as having low conservation value. Table C3 summarizes the CHART's PCE/watershed scores and final conservation value ratings (i.e. low, medium or high) for each occupied HSA. Map C11 depicts the overall spatial distribution of conservation scores for occupied HSAs within the ESU.

Marine Areas

NMFS determined that marine areas did not warrant consideration as critical habitat for this ESU.

References and Sources of Information

NMFS 2003a. Updated Status of Federally Listed ESUs of West Coast Salmon and Steelhead. West Coast Salmon Biological Review Team; Northwest Fisheries Science Center and Southwest Fisheries Science Center. July 2003.

NMFS 2003b. Hatchery Broodstock Summaries and Assessments for Chum, Coho, and Chinook Salmon and Steelhead Stocks within ESUs listed under the ESA. Salmon and Steelhead Hatchery Assessment Group/NOAA Fisheries; Northwest Fisheries Science Center and Southwest Fisheries Science Center.

NMFS 2004b. Draft Findings of NMFS' Critical habitat development and review teams (CHARTs) for 7 ESUs of Salmon and O. mykiss ESUs in California. Main report and 7 appendices. Prepared by NMFS Southwest Region.

Federal Register Notices

62 FR 433937 - Central California Coast Steelhead listing determination

69 FR 33102 - Proposed Listing Determinations for 27 West Coast Salmon and Steelhead ESUs

70 FR 37219 - 6-Month Extension of the Final Listing Determinations for 10 ESUs of West Coast O. mykiss.

Table C2. Summary of Occupied Subbasins/Watersheds, PCE's and Management Activities Affecting PCE's for the Central California Coast Steelhead ESU

Map Code	Basin	Watershed	Calwater Unit	Spawning/Rearing PCEs (mi) ²	Rearing/Migration PCEs (mi) ²	Presence/Migration Only PCEs (mi) ²	Management Activities ^{2,3}
	Russian River	Guerneville	111411	115	115	115	UR, AG, FC, NH
	Russian River	Austin Creek	111412	50	50	49	UR, GR, NW
	Russian River	Laguna De Santa Rosa	111421	11	29	29	FC, UR, AG
	Russian River	Santa Rosa Creek	111422	29	29	29	UR, FC, CM, RB
	Russian River	Mark West Springs	111423	38	38	38	UR, AG, WI
	Russian River	Warm Springs	111424	66	66	59	AG, UR, NH
	Russian River	Geyserville	111425	120	125	123	AG, OM, WI
	Russian River	Sulphur Creek	111426	44	44	44	GR, RB, WI
	Russian River	Ukiah	111431	140	142	140	UR, AG, NH
	Russian River	Forsythe Creek	111433	43	43	43	GR, RB, WI
	Bodega Bay	Salmon Creek	111510	15	20	20	GR, UR, WI
	Bodega Bay	Bodega Harbor	111520				
	Bodega Bay	Estero Americano	111530	4	4	4	AG, GR, WI
	Bodega Bay	Estero De San Antonio	111540				AG, GR, CM, WI, WG
	Marin Coastal	Walker Creek	220112	17	17	17	GR, UR, WI
	Marin Coastal	Lagunitas Creek	220113	36	36	36	UR, NH, NW, WI
	Marin Coastal	Inverness	220114				
	Marin Coastal	Point Reyes	220120	4	6	5	GR
	Marin Coastal	Bollinas	220130	12	12	12	UR, FR, FC
	San Mateo	San Francisco Coastal	220210				
	San Mateo	San Mateo Coastal	220221	8	8	8	NH, UR, WI
	San Mateo	Half Moon Bay	220222	19	22	22	WI, AG, NH
	San Mateo	Tunitas Creek	220223	13	13	12	WI, NW
	San Mateo	San Gregorio Creek	220230	40	40	36	RB, NW
	San Mateo	Pescadero Creek	220240	55	55	47	RB, WI, NW, CM
	Bay Bridges	Bay Waters	220312				TR, WI, UR, RB
	Bay Bridges	San Rafael	220320	17	21	21	UR, CM, FC
	Bay Bridges	Berkeley	220330	2	2	2	UR, CM, FC
	Bay Bridges	San Francisco Bayside	220340				
	South Bay	Bay Channel	220410				UR, TR, RB
	South Bay	Eastbay Cities	220420	34	38	38	UR, FC, NH
	South Bay	Upper Alameda Creek	220430				
	South Bay	San Mateo Bayside	220440	0	1	1	UR, NH, CM
	Santa Clara	Dumbarton South	220510				RB, UR, WL
	Santa Clara	Freemont Bayside	220520	0	4	4	UR, FC, NH

Map Code	Basin	Watershed	Chewer Unit	Spawning/Rearing PCEs (mi) ^{***}	Rearing/Migration PCEs (mi) ^{***}	Presence/Migration Only PCEs (mi) ^{***}	Management Activities ^{***}
	Santa Clara	Coyote Creek	220530	37	44	44	UR, NH
	Santa Clara	Guadalupe River-San Jose	220540	37	37	37	UR, FC, NH
	Santa Clara	Palo Alto	220550	45	46	46	UR, NH, NW
	San Pablo	San Pablo Bay	220610				RB, UR, WL
	San Pablo	Novato Creek	220620	11	17	17	UR, CM
	San Pablo	Petaluma River	220630	15	39	39	TR, UR, FC, CM, AG
	San Pablo	Sonoma Creek	220640	83	87	87	NH, RB, NW, CM, AG
	San Pablo	Napa River	220650	145	177	177	NH, WL, UR, CM, AG
	San Pablo	Pinole	220660	5	26	26	UR, CM, NH
	Suisun	Suisun Bay	220710				RB, TR, UR, WL
	Suisun	Benicia	220721	11	18	29	NH, WL, RB
	Suisun	Suisun Creek	220722	14	15	15	NH, NW, UR
	Suisun	Suisun Slough	220723				
	Suisun	Grizzly Island	220724				
	Suisun	Pittsburg	220731	0	15	15	UR, RB
	Suisun	Walnut Creek	220732				
	Suisun	Martinez	220733	2	9	9	FC, UR, NH
	Big Basin	Davenport	330411	51	51	41	RB, WL, FR
	Big Basin	San Lorenzo	330412	93	103	97	NW, RB, FR
	Big Basin	Aptos-Squel	330413	42	41	41	NW, RB, FR
	Big Basin	Ano Nuevo	330420	14	14	14	WL, NH

*Total Stream Miles calculated from blue line streams represented on 1:100,000 USGS Topographic Maps

**Overlap of stream miles may occur between the three habitat types.

***Management Activities Codes:

AG - Agriculture
 CM - Channel Modification
 ES - Exotic / Invasive Species
 FC - Flood Control Channel
 FR - Forestry
 GM - Sand and Gravel Mining
 GR - Grazing
 HD - Hydroelectric Dam
 NH - Non-hydro Dam
 NW - Non-agriculture Withdrawals / Impoundments
 PO - Poaching
 RB - Road Building / Maintenance
 SP - Septic System Failure / Containment
 TR - River, Estuary, Ocean Traffic
 UR - Urbanization
 WL - Wetland Loss / Removal

Table C3. Summary of Scores and Overall Rankings of Conservation Values for Critical Habitat for HSA watersheds occupied by the Central California Coast Steelhead ESU

Map Code	Basin	Watershed	Calwater Unit	Total Score (0-18)	Comments / Other Considerations	Conservation Value
	Russian River	Guenerville	111411	15		High
	Russian River	Austin Creek	111412	14		High
	Russian River	Laguna De Santa Rosa	111421	8		Low
	Russian River	Santa Rosa Creek	111422	12		Medium
	Russian River	Mark West Springs	111423	12		High
	Russian River	Warm Springs	111424	13		High
	Russian River	Geyserville	111425	14		High
	Russian River	Sulphur Creek	111426	14		High
	Russian River	Ukiah	111431	12		Medium
	Russian River	Forsyth Creek	111433	13		High
	Bodega Bay	Salmon Creek	111510	10		Medium
	Bodega Bay	Bodega Harbor	111520	0		NA
	Bodega Bay	Estero Americano	111530	9		Low
	Bodega Bay	Estero De San Antonio	111540	0		NA
	Marin Coastal	Walker Creek	220112	10		Medium
	Marin Coastal	Lagunitas Creek	220113	14		High
	Marin Coastal	Inverness	220114	0		NA
	Marin Coastal	Point Reyes	220120	5		Low
	Marin Coastal	Bolinas	220130	6		Low
	San Mateo	San Francisco Coastal	220210	0		NA
	San Mateo	San Mateo Coastal	220221	8		Low
	San Mateo	Half Moon Bay	220222	11		Medium
	San Mateo	Tunitas Creek	220223	10		Medium
	San Mateo	San Gregorio Creek	220230	14		High
	San Mateo	Pescadero Creek	220240	14		High
	Bay Bridges	Bay Waters	220312	0		High
	Bay Bridges	San Rafael	220320	11		Medium
	Bay Bridges	Berkeley	220330	5		Low
	Bay Bridges	San Francisco Bayside	220340	0		NA
	South Bay	Bay Channel	220410	0		High
	South Bay	Eastbay Cities	220420	10		Medium
	South Bay	Upper Alameda Creek	220430	0		NA
	South Bay	San Mateo Bayside	220440	1		Low
	Santa Clara	Dumbarton South	220510	0		High
	Santa Clara	Freemont Bayside	220520	0		Low
	Santa Clara	Coyote Creek	220530	12		Medium
	Santa Clara	Guadalupe River-San Jose	220540	7		Low
	Santa Clara	Palo Alto	220550	10		Medium
	San Pablo	San Pablo Bay	220610	0		High
	San Pablo	Novato Creek	220620	8		Low
	San Pablo	Petaluma River	220630	11		Medium
	San Pablo	Sonoma Creek	220640	14		High

	San Pablo	Napa River	220650	13		High
	San Pablo	Pinole	220660	6		Low
	Suisun	Suisun Bay	220710	0		Low
	Suisun	Benicia	220721	2		Low
	Suisun	Suisun Creek	220722	10		Medium
	Suisun	Suisun Slough	220723	0		NA
	Suisun	Grizzly Island	220724	0		NA
	Suisun	Pittsburg	220731	9		Low
	Suisun	Walnut Creek	220732	0		NA
	Suisun	Martinez	220733	5		Low
	Big Basin	Davenport	330411	14		High
	Big Basin	San Lorenzo	330412	14		High
	Big Basin	Aptos-Soquel	330413	13		High
	Big Basin	Ano Nuevo	330420	10		Medium

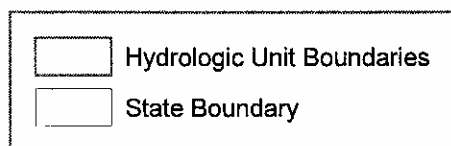
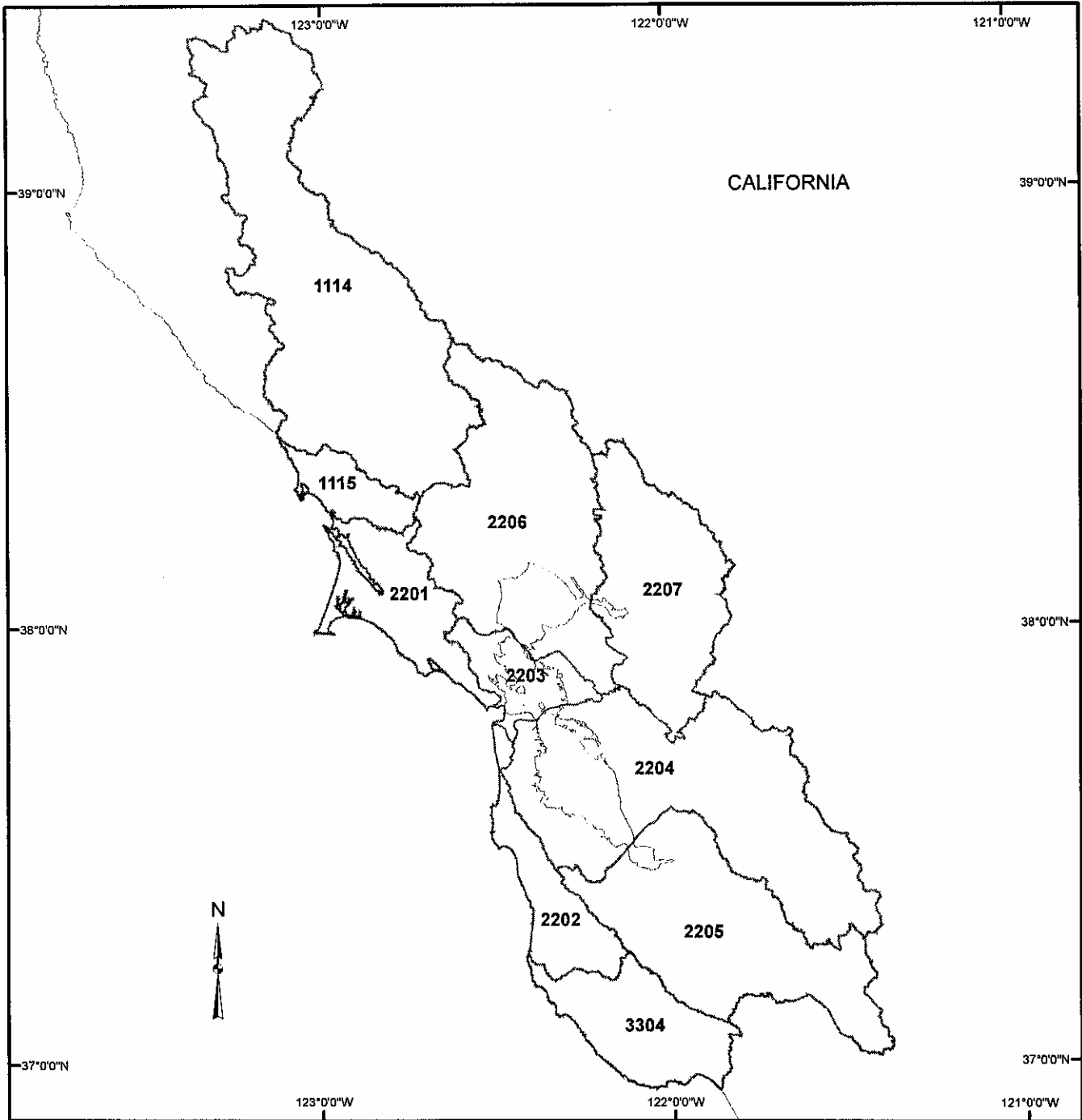
Figures C1 through C3: CALWATER Hydrologic Units, and Hydrologic subareas within the Range of the Central California Coast *Steelhead* ESU

C1 - CALWATER Hydrologic Units

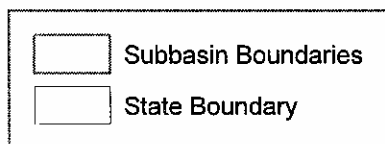
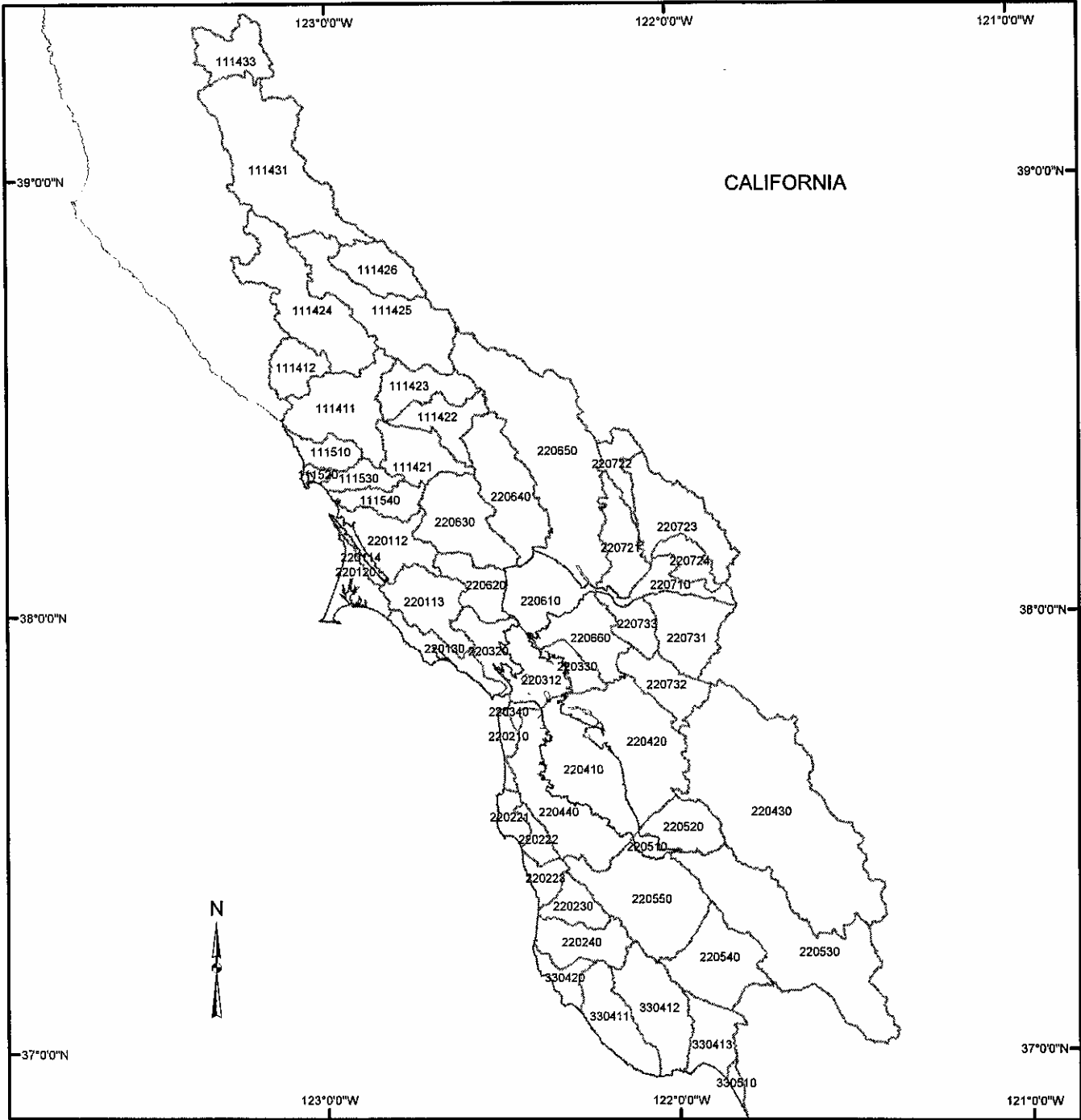
C2 - CALWATER Hydrologic Subareas

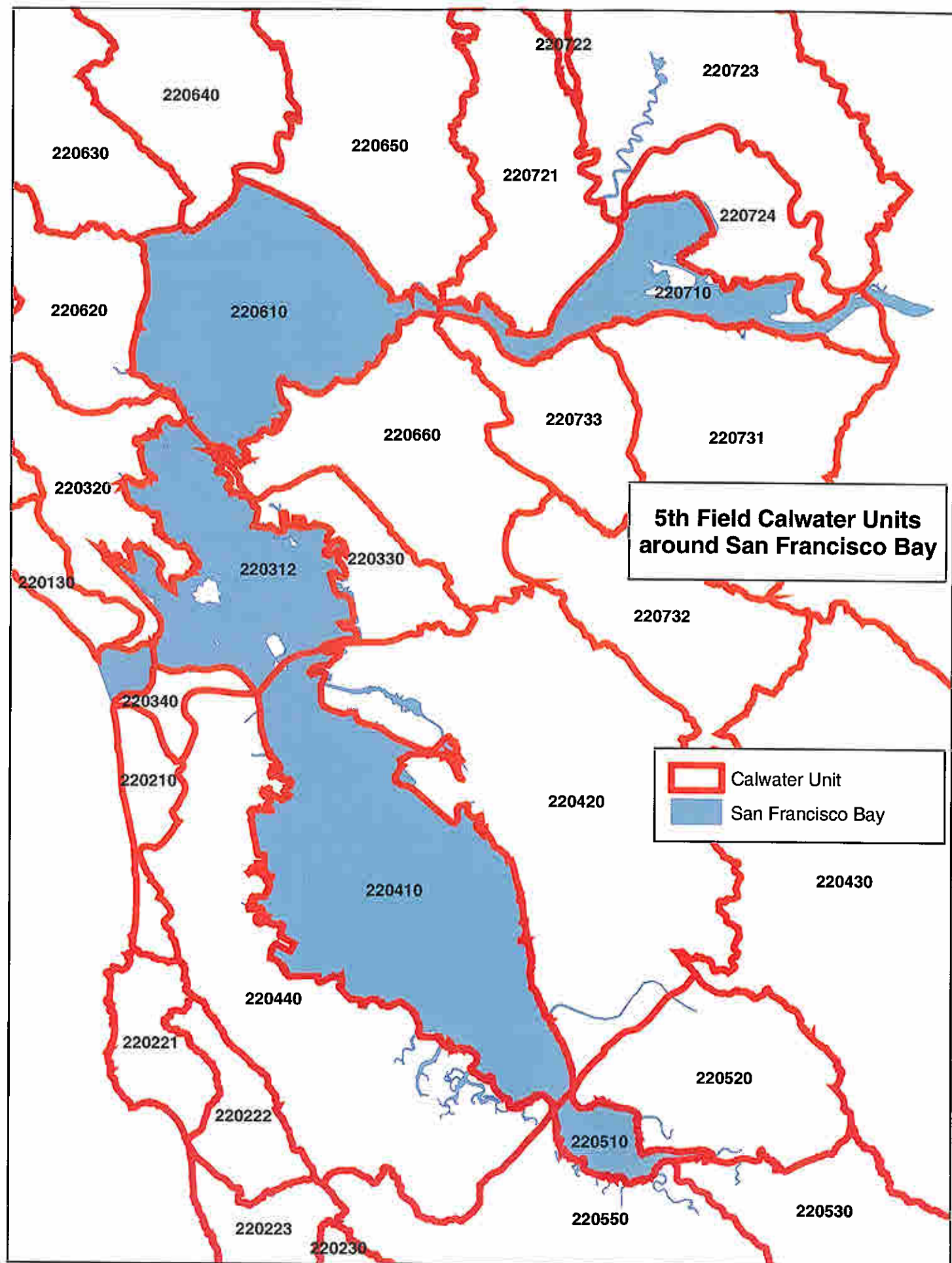
C3 - San Francisco/San Pablo Bay HSAs

Map of the Central California Coast Steelhead ESU



Map of the Central California Coast Steelhead ESU





Maps C1 through C10: Central California Coast *Steelhead* ESU - Habitat Areas (Units)
Considered for Critical Habitat Designation

C1 - Unit 1114 (Russian River HU)

C2 - Unit 1115 (Bodega HU)

C3 - Unit 2201 (Marin Coastal HU)

C4 - Unit 2202 (San Mateo HU)

C5 - Unit 2203 (Bay Bridges HU)

C6 - Unit 2204 (South Bay HU)

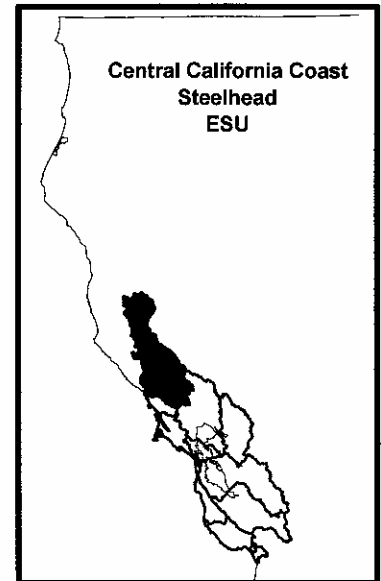
C7 - Unit 2205 (Santa Clara HU)

C8 - Unit 2206 (San Pablo HU)

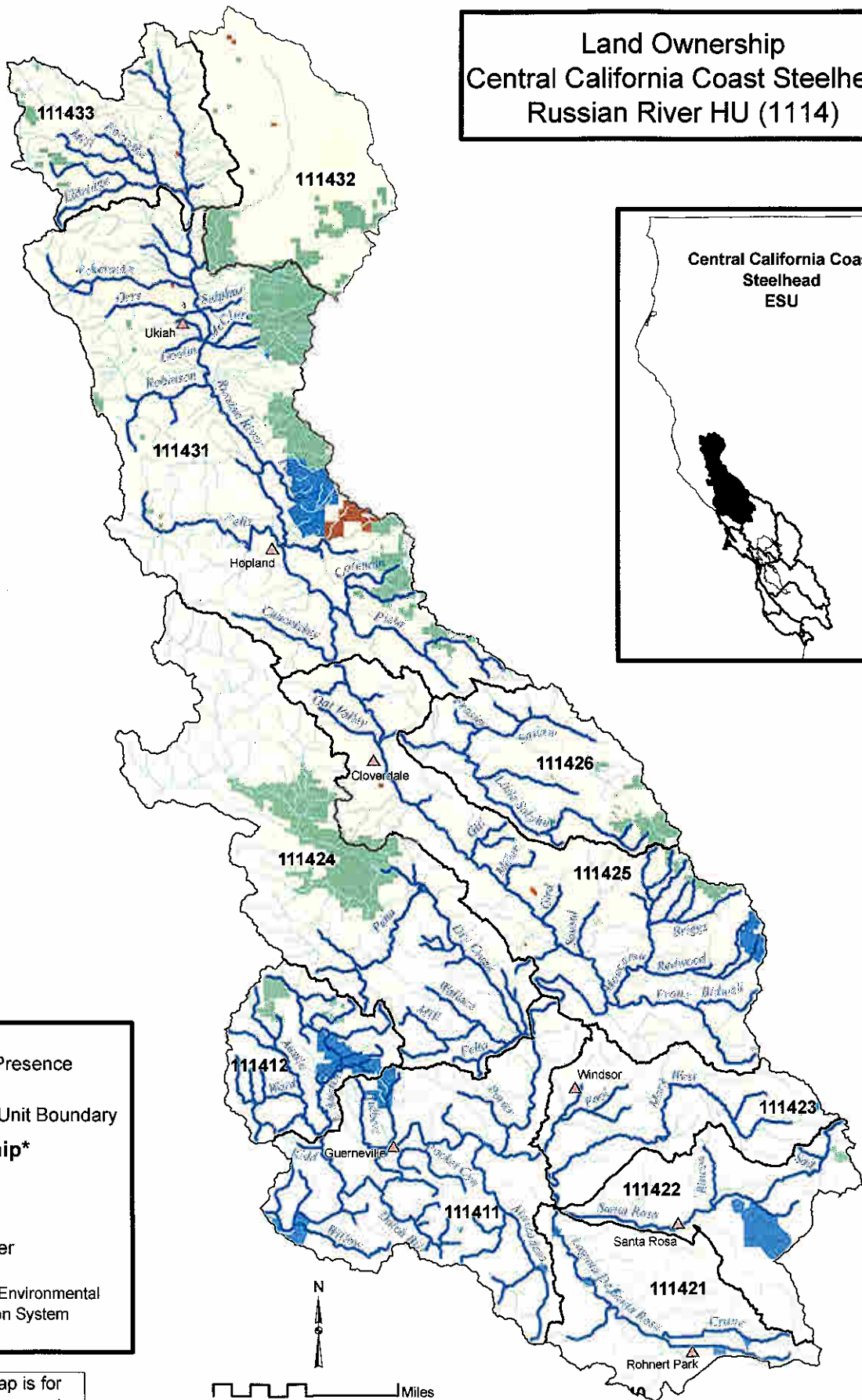
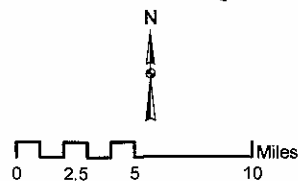
C9 - Unit 2207 (Suisun HU)

C10 - Unit 3304 (Big Basin HU)

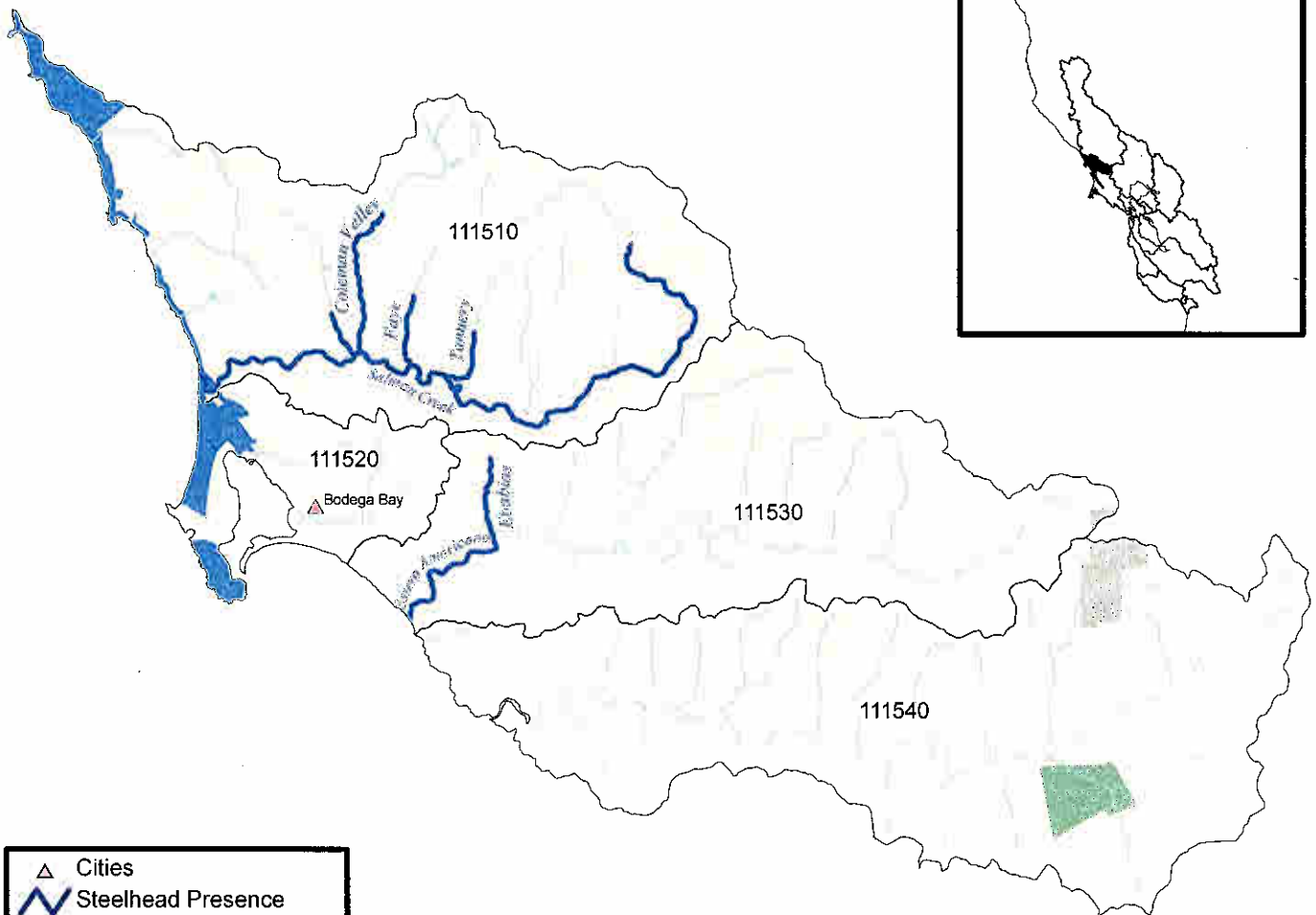
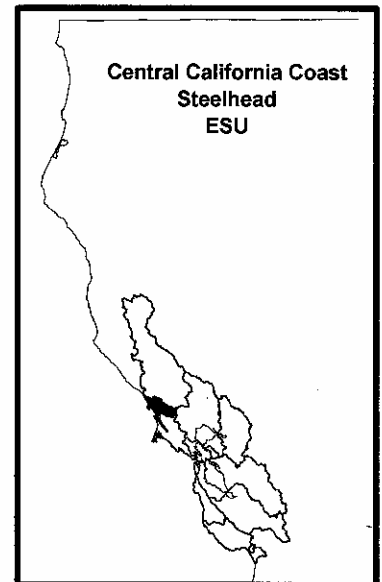
Land Ownership Central California Coast Steelhead Russian River HU (1114)



Note: This map is for
general reference only



Land Ownership Central California Coast Steelhead Bodega HU (1115)



- △ Cities
- Steelhead Presence
- Streams
- Hydrologic Unit Boundary
- Land Ownership***
 - Tribal
 - Federal
 - State/Local
 - Private/Other
 - Water

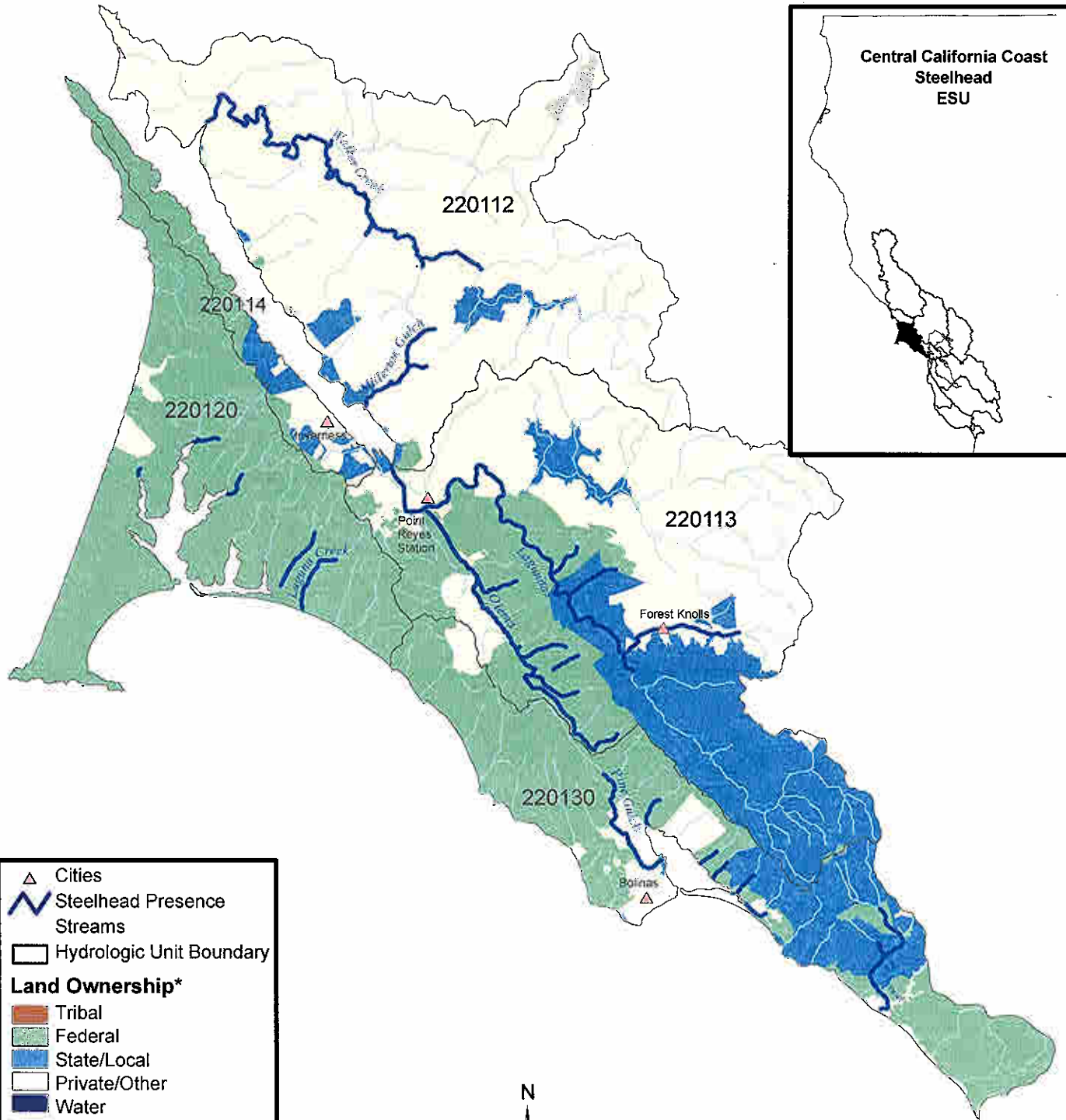
*Source: California Environmental
Resources Evaluation System
(CERES), 1999

Note: This map is for
general reference only

0 2.5 Miles

Land Ownership Central California Coast Steelhead Marin Coastal HU (2201)

Central California Coast
Steelhead
ESU

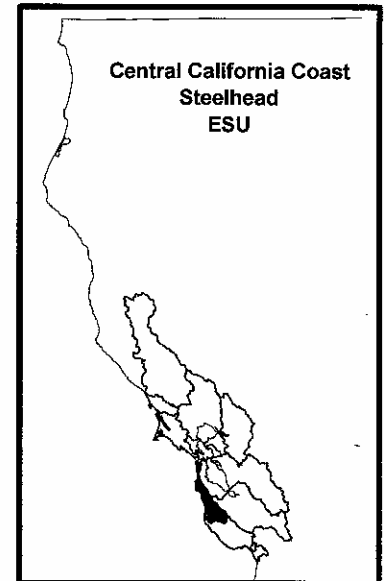


*Source: California Environmental Resources Evaluation System (CERES), 1999

Note: This map is for general reference only

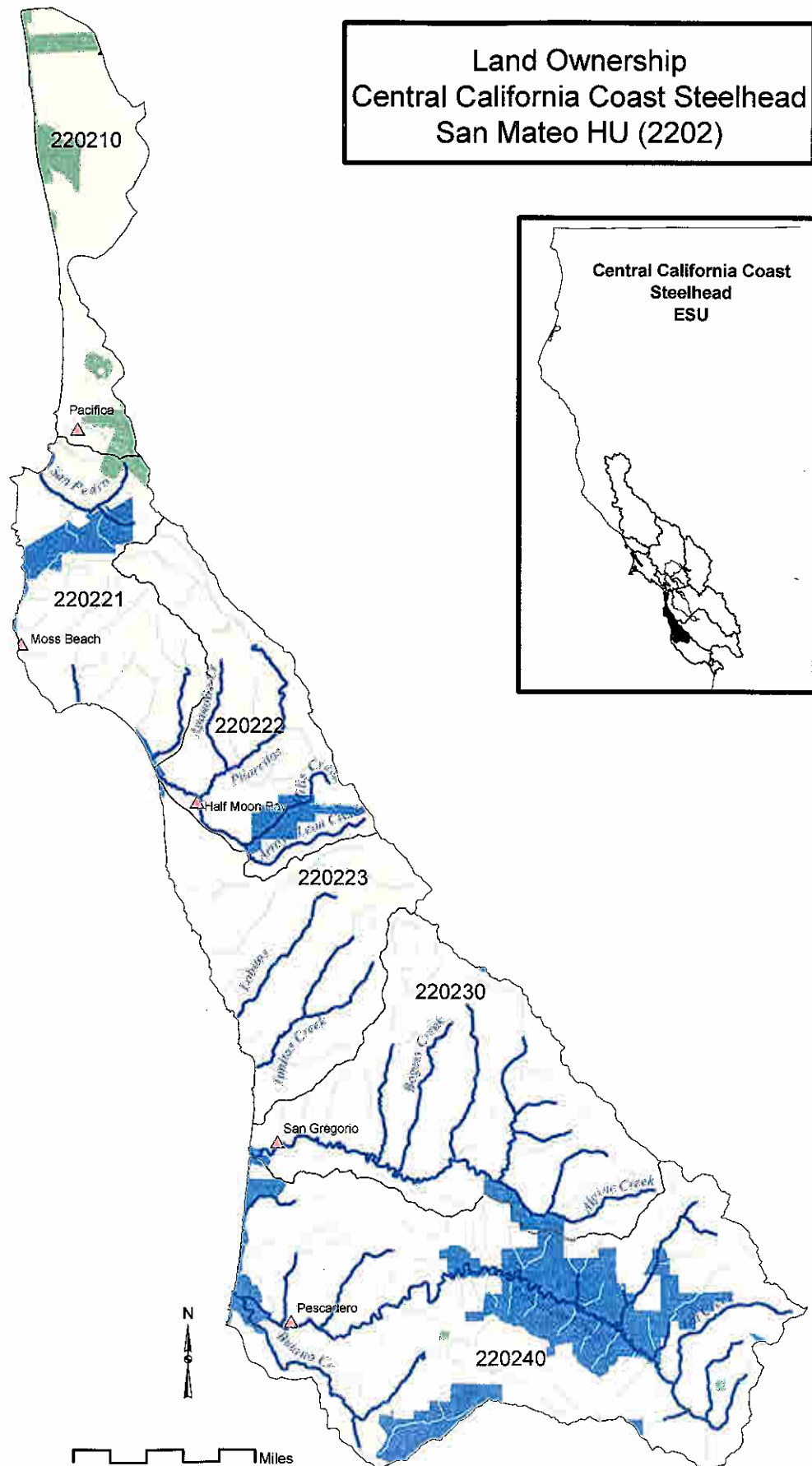
0 1 2 4 6 8 10 Miles

Land Ownership Central California Coast Steelhead San Mateo HU (2202)

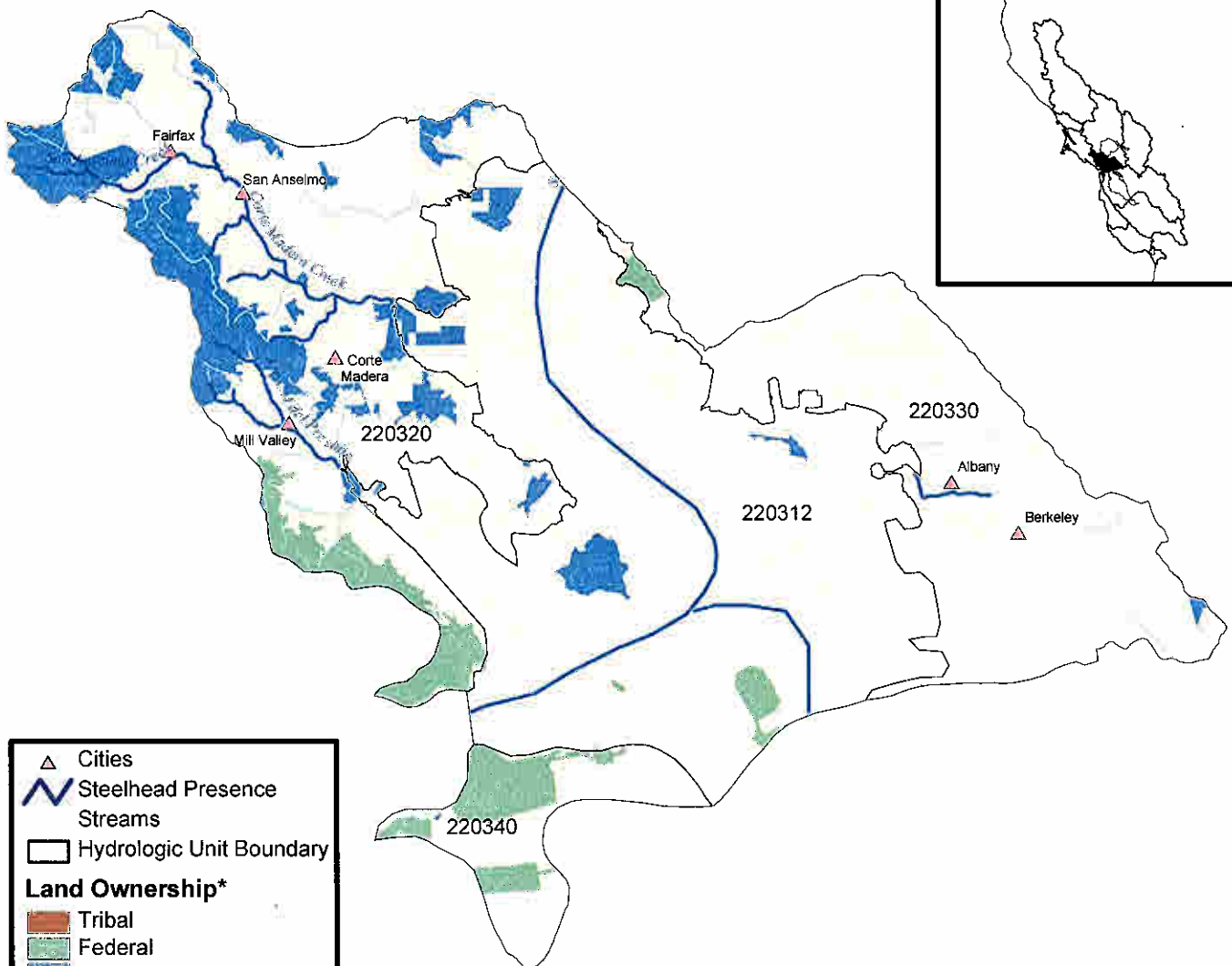
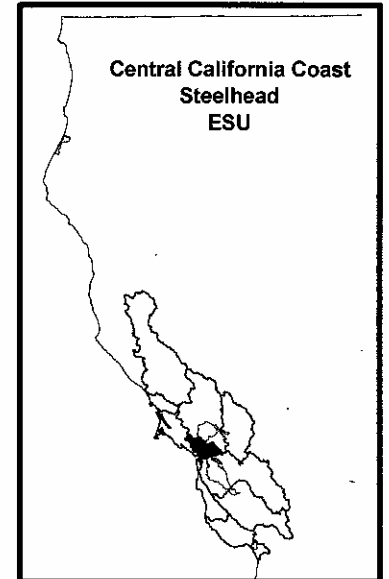


Note: This map is for
general reference only

0 2.5 5 Miles



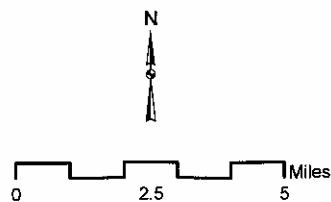
Land Ownership Central California Coast Steelhead Bay Bridges HU (2203)



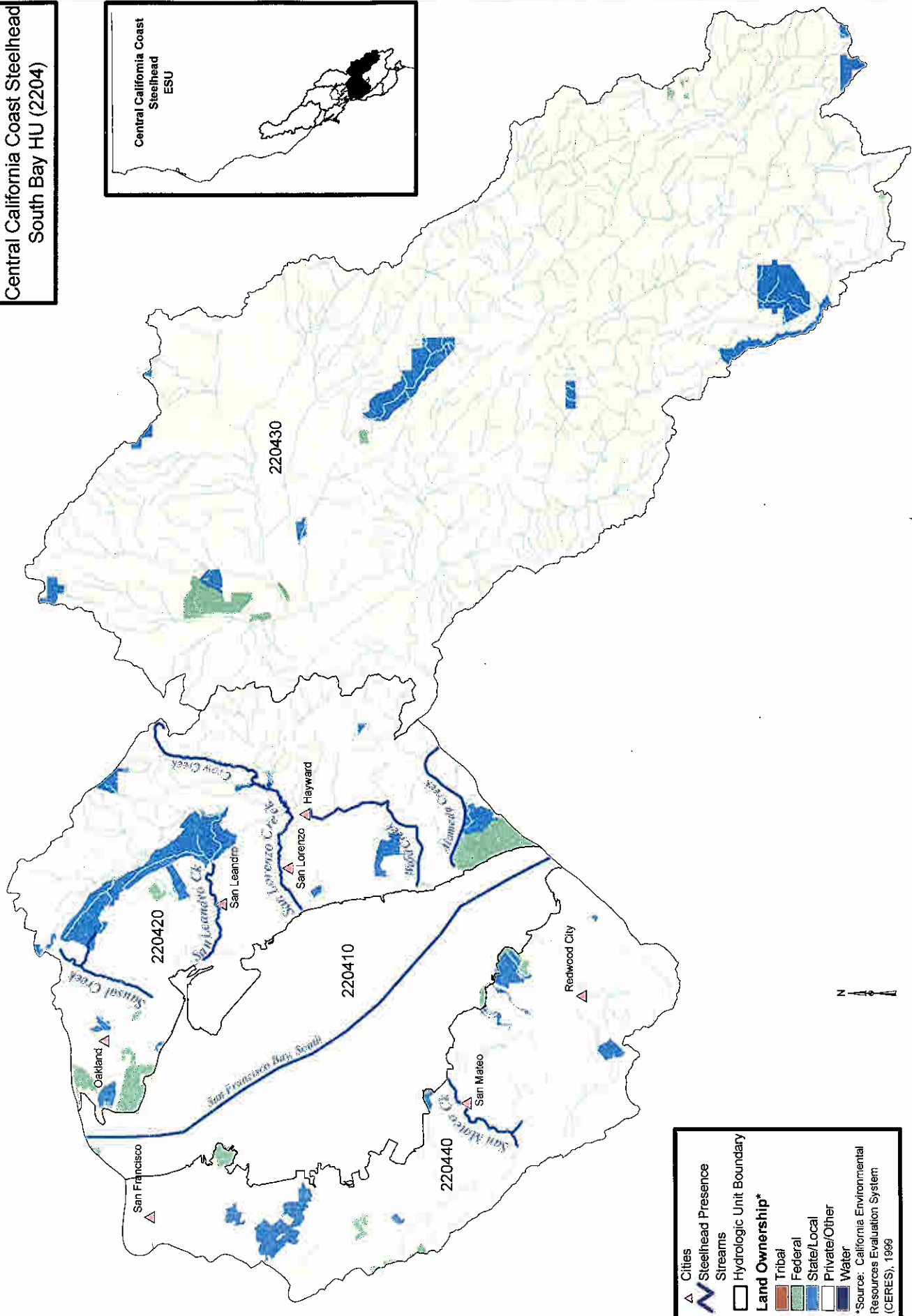
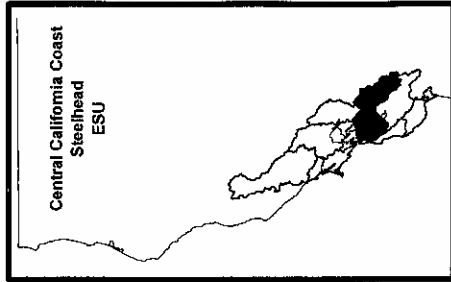
- △ Cities
- Steelhead Presence Streams
- Hydrologic Unit Boundary
- Land Ownership***
 - Tribal
 - Federal
 - State/Local
 - Private/Other
 - Water

*Source: California Environmental Resources Evaluation System (CERES), 1999

Note: This map is for general reference only



Land Ownership
Central California Coast Steelhead
South Bay HU (2204)

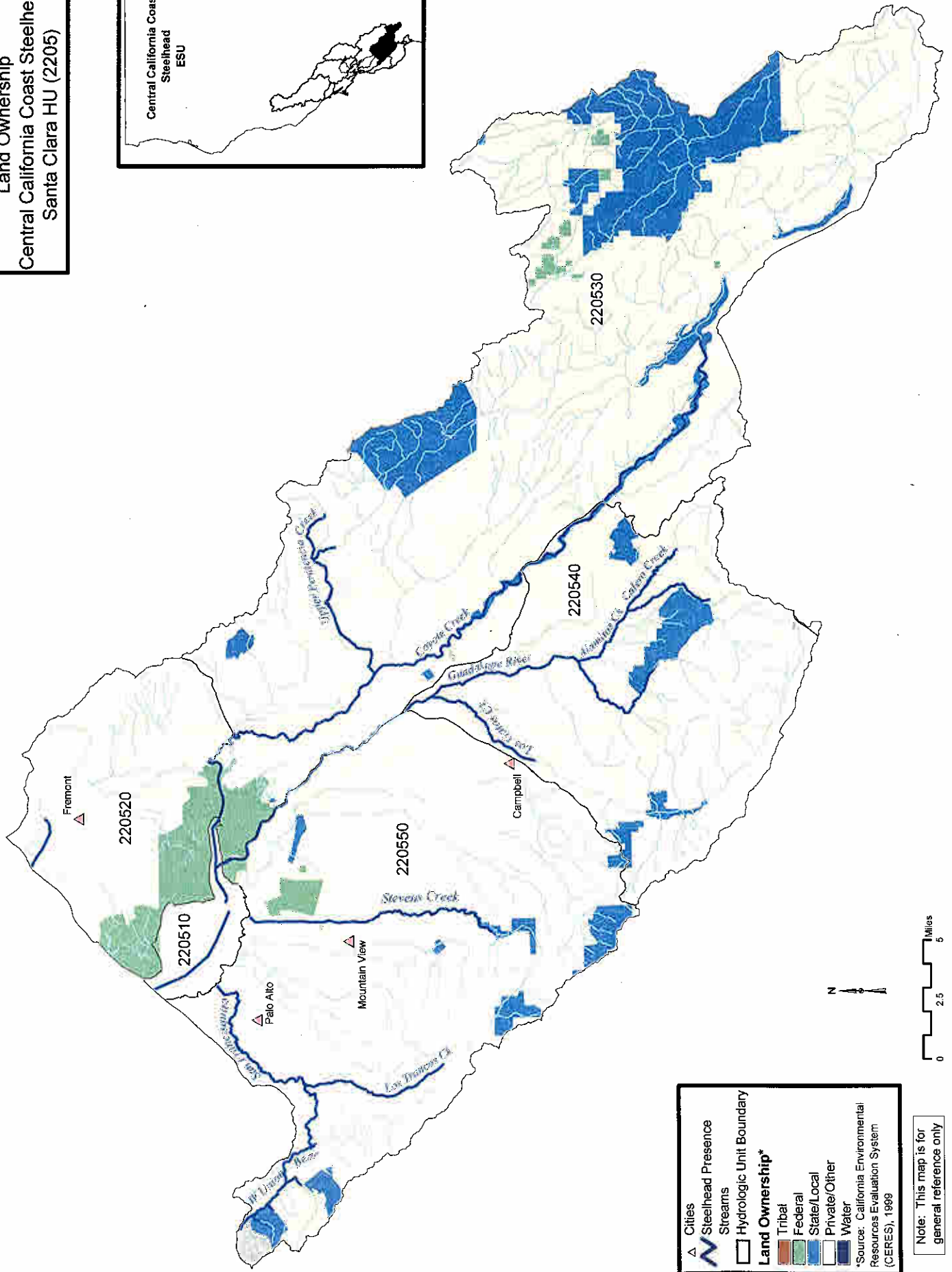
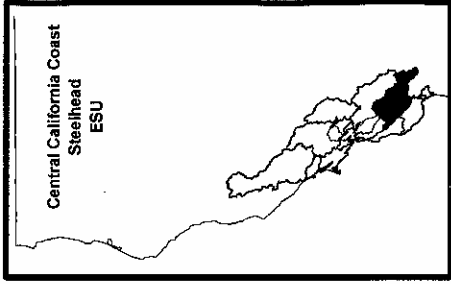


▲ Cities
 Steelhead Presence
 Streams
 Hydrologic Unit Boundary
Land Ownership*
 Tribal
 Federal
 State/Local
 Private/Other
 Water
 *Source: California Environmental
 Resources Evaluation System
 (CERES), 1999

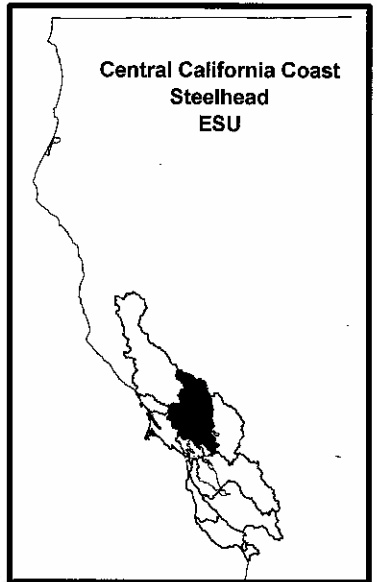


Note: This map is a for
general reference only

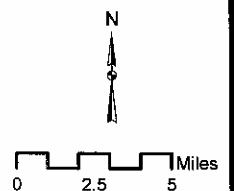
Land Ownership
Central California Coast Steelhead
Santa Clara HU (2205)



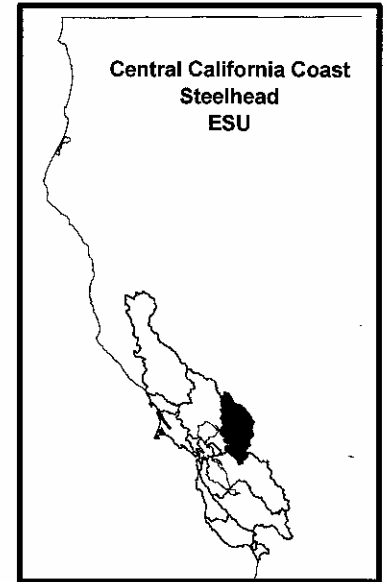
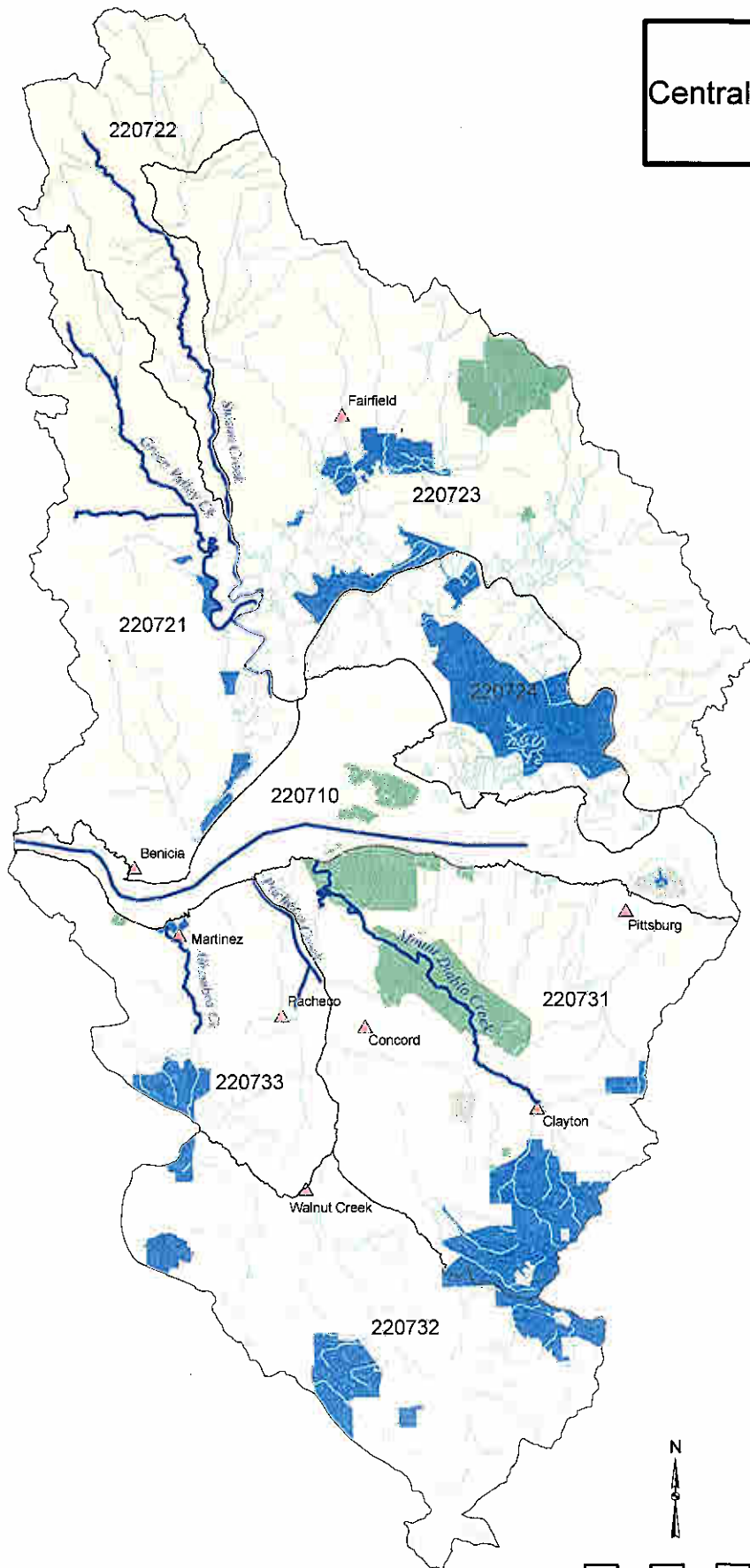
**Land Ownership
Central California Coast Steelhead
San Pablo HU (2206)**



Note: This map is for general reference only

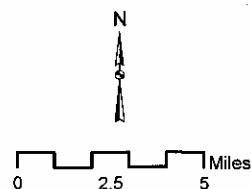


Land Ownership Central California Coast Steelhead Suisun HU (2207)



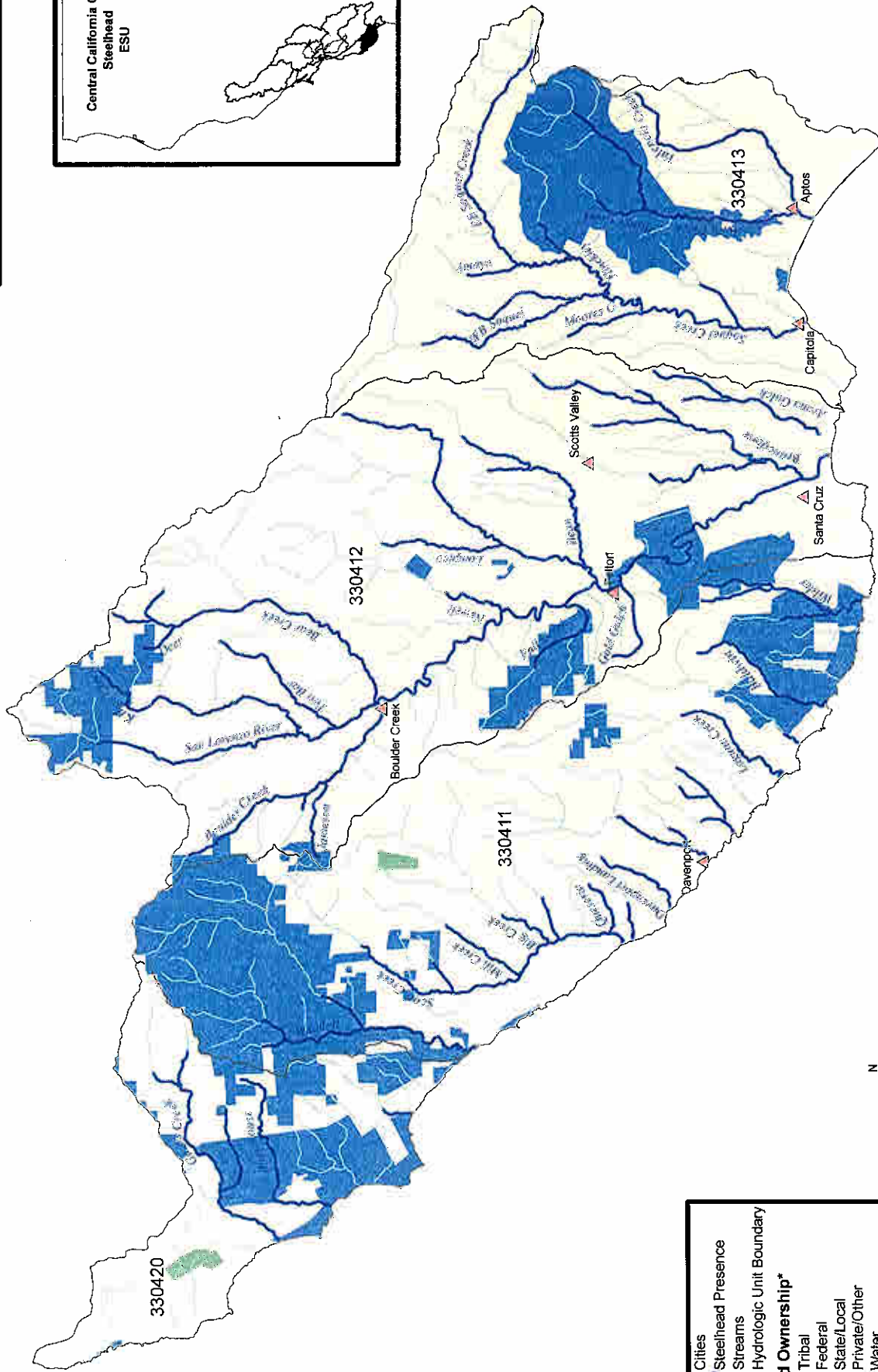
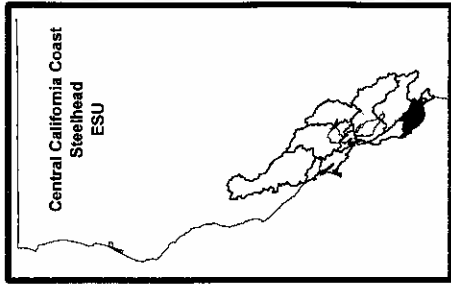
▲ Cities
 Steelhead Presence
 Streams
 Hydrologic Unit Boundary
Land Ownership*
 Tribal
 Federal
 State/Local
 Private/Other
 Water

*Source: California Environmental Resources Evaluation System (CERES), 1999

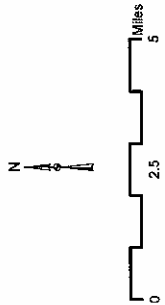


Note: This map is for general reference only

Land Ownership
Central California Coast Steelhead
Big Basin HU (3304)



▲ Cities
 Steelhead Presence
 Streams
 Hydrologic Unit Boundary
Land Ownership*
 Tribal
 Federal
 State/Local
 Private/Other
 Water
 *Source: California Environmental
 Resources Evaluation System
 (CERES), 1999



Note: This map is for
general reference only

Map C11. Preliminary CHART Ratings of Conservation Value for CALWATER HSA
Watersheds occupied by the Central California Coast *Steelhead* ESU

Central California Coast Steelhead Watershed Conservation Rating

Map of the fifth- field watersheds occupied by the Central California Coast Steelhead Evolutionarily Significant Unit (ESU) and eligible for designation as critical habitat.

